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Ino et al.

[11] **Patent Number:** **5,590,001**[45] **Date of Patent:** **Dec. 31, 1996**[54] **BREATHER FILTER UNIT FOR MAGNETIC DISK DRIVE**

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[51] **Int. Cl.⁶** **G11B 33/14**[52] **U.S. Cl.** **360/97.02**[58] **Field of Search** **360/97.02**[56] **References Cited****U.S. PATENT DOCUMENTS**

4,863,499 9/1989 Osendorf 360/97.02 X

5,012,360 4/1991 Yamaguchi et al. 360/97.02
5,075,807 12/1991 Inoue et al. 360/97.02
5,367,417 11/1994 Brown et al. 360/97.02
5,417,743 5/1995 Dauber 360/97.02 X

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[57]

ABSTRACT

A breather filter unit for a magnetic disk drive including a base and a cover fixed to the base, the cover having a vent. The breather filter unit includes a casing fixed to an inner surface of the cover, the casing having a vent inlet communicating with the vent of the cover and a vent outlet communicating with an inside of the magnetic disk drive, and a first filter contained in the casing at a position adjacent to the vent inlet, the first filter being formed from a plurality of fibers extending in a direction substantially parallel to that of an air flow from the vent inlet to the vent outlet. The breather filter unit further includes a second filter bonded to the casing so as to cover the vent outlet, and an activated carbon layer contained in the casing at a position between the first filter and the second filter.

8 Claims, 11 Drawing Sheets